

REMARKS

Applicant respectfully requests reconsideration. Claims 1-24 were previously pending in this application. By this amendment, claims 1, 5, 7-9 and 14-24 have been canceled, claims 2, 10, 12 and 13 have been amended, and new claims 25-34 have been added. As a result, claims 2-4, 6, 10-13 and 25-34 are pending for examination with claims 25 and 26 being independent claims. No new matter has been added. Applicant respectfully requests reconsideration in view of these amendments and the following arguments.

Rejections Under 35 U.S.C. §102

In the Office Action dated February 12, 2007, claims 1, 15 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by Uber (U.S. Patent No. 5,843,037), claims 1-2, 4-19 and 21-24 were rejected under 35 U.S.C. §102(b) as being anticipated by Heilman (U.S. Patent No. 5,569,181), claims 1-7, 10-13 and 15-24 were rejected under 35 U.S.C. §102(b) as being anticipated by Lichenstein (U.S. Patent No. 4,464,172), and claims 1-7, 9-13 and 15-24 were rejected under 35 U.S.C. §102(b) as being anticipated by Teirstein (U.S. Patent No. 5,533,978).

Applicant respectfully disagrees with these rejections. However, to further the prosecution of this application, Applicant has canceled independent claims 1, 15 and 18 and dependent claims 5, 7-9, 14, 16, 17 and 19-24. As discussed in more detail below, dependent claims 2, 3, 4, 6 and 10-13 have been amended to depend from new independent claim 25 rather than now canceled independent claim 1.

New independent claims 25 and 26 are believed to be allowable over these references for at least the reasons discussed below.

Accordingly, withdrawal of these rejections is respectfully requested.

New Claims

Applicant has added new independent claims 25 and 26 and dependent claims 27-34 to further define the invention. Support for the new independent claims may be found at least on page 2, lines 19-26; page 2, line 30-page 3, line 2; page 3, lines 15-17; page 5, lines 12-14; page 8, lines

26-29; page 9, line 30 - page 10, line 2; and page 10, lines 10-13. New dependent claims 27-34 are similar to pending dependent claims 2, 3, 4, 6 and 10-13.

New Independent Claim 25

New independent claim 25 is directed to a method for injecting liquid under pressure to a patient. The method includes the step of providing liquid under pressure to a patient through a length of tubing, *where the tubing includes a pressurizing system, a first occlusion system and a regulation system located upstream from the first occlusion system.* The first occlusion system and the regulation system define an intermediate segment having an intermediate pressure and the tubing also includes a segment downstream of the first occlusion system having a downstream pressure. Due to the action of the *pressurizing system*, there is a *positive pressure during the injection in the intermediate segment and the downstream segment.* The method further includes the step of when injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system *in such a manner that part of said positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure*, at least until the patient is disconnected from the tubing.

Uber is directed to a device for delivering a liquid into a patient. The Uber device includes a metering pump 12, a static mixer 20, a pressurization pump 25 and a rotary switch 27 which can distribute the liquid between multiple patients through patient hookups 30, 31, 32. The Office Action states that it is evident that Uber would disclose providing the liquid and then stopping the liquid by closing the valve/pump 12, 20, 21 (purported regulation system) and then the rotary valve 27 (purported occlusion system).

In general, a pump may be closed before a downstream valve to prevent overpressure on the outlet of the valve which may affect the seal of the valve. When the pump is stopped, the pressure becomes almost immediately evenly distributed along the line. In such a configuration, there is no reason why there would remain a positive pressure upstream of the valve in comparison to the pressure than downstream of the valve. When the pressure upstream of the valve is the same as the pressure downstream of the valve, if the valve was to leak, contamination in the upstream direction is possible.

Similarly, Heilman discloses an apparatus for delivering contrast media to multiple patients. A backflow valve 21 is positioned downstream of the contrast media reservoir to prevent fluid from contaminating the reservoir. A plurality of dosing units 40-42 are positioned at the downstream end of the apparatus for connection to patients, and each dosing unit contains another back flow valve 46.

Lichtenstein, like Heilman, discloses controlling pressure by using a pressurization pump 25. The pump 25 is used to build up pressure across a semi-permeable membrane 46 within a dialysis canister 42 where the pressure difference is part of the filtration process associated with dialysis.

Finally, Teirstein discloses a method and apparatus for injecting a radiographic dye during angioplasty. The apparatus include a bottle 12 which holds the dye, and a one-way valve 36 which allows for the dye to only flow toward a deformable holding chamber 14. Downstream of the deformable chamber 14 is tubing 20 and a syringe 50 with a manifold 16 which may have a plurality of valves.

Uber, Heilman et al., Lichtenstein and Teirstein all fail to disclose or suggest a method for injecting liquid under pressure to a patient where due to the action of the pressurizing system, there is a positive pressure during the injection in both the intermediate segment and the downstream segment, and that when injection is desired to be stopped, the regulation system and the first occlusion system are closed in such a manner that part of the positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure at least until the patient is disconnected from the tubing, as recited in independent claim 25.

For at least these reasons, new independent claim 25 is patentable over Uber, Heilman et al., Lichtenstein and Teirstein. Dependent claims 2, 3, 4, 6 and 10-13 have been amended to depend from new claim 25 and are patentable for at least the same reasons as claim 25.

New Independent Claim 26

New independent claims 26 is also directed to a method for injecting liquid under pressure to a patient. The method includes the step of providing liquid under pressure to a patient through a length of tubing, *where the tubing includes a pressurizing system*, a first occlusion system and a

regulation system located upstream from the first occlusion system. The first occlusion system and the regulation system define an intermediate segment having an intermediate pressure and the tubing also includes a segment downstream of the first occlusion system having a downstream pressure. Due to the action of the *pressurizing system*, there is a *positive pressure during the injection in the intermediate segment and the downstream segment*. The method further includes the step of when injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system *in such a manner that the first occlusion system closes when the pressure in the intermediate segment falls below an opening pressure of the first occlusion system*, where the opening pressure of the first occlusion system is greater than the maximum pressure that can be set up in the downstream segment in the absence of injection, *so that part of the positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure*, at least until the patient is disconnected from the tubing, in order to direct leakage of fluid from the first occlusion system to the patient.

Uber, Heilman et al., Lichtenstein and Teirstein all fail to disclose or suggest a method for injecting liquid under pressure to a patient where due to the action of the pressurizing system, there is a positive pressure during the injection in both the intermediate segment and the downstream segment, and that when injection is desired to be stopped, the regulation system and the first occlusion system are closed in such a manner that the first occlusion system closes when the pressure in the intermediate segment falls below an opening pressure of the first occlusion system, where the opening pressure of the first occlusion system is greater than the maximum pressure that can be set up in the downstream segment in the absence of injection, so that part of the positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure at least until the patient is disconnected from the tubing.

For at least these reasons, new independent claim 26 is patentable over Uber, Heilman et al, Lichtenstein and Teirstein. New dependent claims 27-34 all depend from claim 26 and are patentable for at least the same reasons.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

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Respectfully submitted,

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